

**"An Improved Golf Club"**

This invention relates to a golf club and more particularly, but not exclusively, to a putter.

It is known to provide golf clubs which are formed 5 inter alia from a club head and a shaft in which the shaft is secured in a bore in the club head by, for example, adhesive. It will be appreciated that this method of securing the shaft to the club suffers from the disadvantage that total reliance is placed upon the 10 adhesive joint in securing the club head to the shaft and this method is applied not only to a putter but also to other clubs including woods and irons.

It is also known to provide putters having different shapes of club head such as a simple blade shape to a 15 T-shaped head in plan view to attempt to provide a putter which is easier to use to allow the golfer to be more accurate when executing a putting stroke.

The object of the present invention is to provide a golf club in which the disadvantage set out above in the 20 second paragraph is alleviated. Alternatively, the object of the invention is to provide an improved design of putter which facilitates the execution by a golfer of a more accurate putting stroke.

According to one aspect of the invention, a golf club 25 comprises a club head having a bore formed therethrough extending from the base of the club head to the upper

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surface thereof, a socket adapted to be inserted into the bore in the club head and a shaft adapted to be inserted into a bore formed in the socket, wherein the socket is adapted to be inserted upwardly into the end of the bore  
5 in the base of the club head and positively retained in said bore against movement out of the top of the bore.

Preferably, the bore in the club head is provided with a reduced diameter portion forming a lip against which a corresponding lip on the socket engages to restrict upward  
10 movement of the socket towards and out of the upper end of the bore in the club head and positively locate the socket in desired position in said bore.

Preferably, also, at least part of the bore in the club head is tapered outwardly from the end at or adjacent  
15 to the upper surface towards the end of the bore at or adjacent to the base of the club head and the socket is of a complementary shape to allow upward insertion thereof into the said bore from the base of the club head.

At least part of the bore in the club head is,  
20 preferably, non-circular in section and at least part of the socket has a complementary non-circular shape in section.

Preferably, the longitudinal axis of the bore in the socket in which the shaft is inserted is disposed at an  
25 angle to the longitudinal axis of the socket.

Preferably, also, the socket is formed of a material

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which degrades at a faster rate than the material from which the club head and/or the shaft are formed.

The socket is, preferably, formed of a plastics material.

5 According to another aspect of the invention, a golf club in the form of a putter for putting a golf ball into a golf hole comprises a club head having a shaft secured thereto wherein the width of the club head is at least a major portion of the diameter of the golf hole and the  
10 ratio of the club head width to the depth of the club head is in the range of 1.0 to 1.0 down to 1.0 to 0.5.

Preferably, the width of the club head is equal to or greater than the diameter of a golf hole and the depth of the club head is equal to or greater than the radius of a  
15 golf hole.

Preferably, also, the rear end of the club head is at least partially arcuate in shape in plan view.

The rear end of the club head, preferably, has a weighting assembly secured thereto.

20 Preferably, the weighting assembly is releasably secured to the club head.

Preferably, also, the weighting assembly is arcuate in shape.

25 The weighting assembly of arcuate shape, preferably, has a radius which is equal to or substantially equal to the radius of a golf hole.

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Preferably, the club head comprises a housing block, a carcass connected thereto and the weighting assembly releasably connected to the carcass.

Preferably, also, a club face is connected to the 5 housing block and the club face may be releasably connected to the housing block.

An insert is, preferably, connected to the side of the club face remote from the carcass.

Preferably, the insert is releasably connected to the 10 club face.

Preferably, also, the upper surface of the club head is provided with a central guide line extending perpendicularly to the plane of the club face.

The upper surface of the club head is, preferably, 15 provided at or adjacent to the sides thereof with additional guide lines extending parallel to the central guide line and equally spaced-apart therefrom by a distance equal to the radius of a golf hole.

Preferably, two intermediate guide lines are provided 20 on the surface of the club head parallel to and equally spaced-apart on each side of the central guide line by a distance equal to the radius of a golf ball.

According to a further aspect of the invention, a putter comprises a head having a shaft secured thereto 25 wherein the head of the putter has two upwardly spaced-apart surfaces each provided with or forming visual

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indicating means adapted to co-operate when viewed from above to enable the position of the putter to be adjusted to a correct orientation.

Preferably, the visual indicating means comprises  
5 markings formed on said two surfaces adapted to be aligned by a golfer when viewed from above at the golfers address position to position the putter in the correct orientation and the golfers eyes in the correct position.

Preferably, also, the markings are at least partially  
10 circular.

The diameter of the circular part of the marking on the lower one of said two surfaces is, preferably, equal to or greater than the diameter of the circular part of the marking on the upper one of said two surfaces to  
15 facilitate alignment of the markings so that the putter and the golfers eyes are correctly positioned at the golfer's address position.

A preferred embodiment of the invention will now be described, by way of example only, with reference to the  
20 accompanying drawings of which:-

Figure 1 is a diagrammatic perspective view of a golf club in a dismantled condition with parts omitted for the sake of clarity;

Figure 2 is a diagrammatic perspective view of an  
25 alternative golf club in a dismantled condition with parts omitted for the sake of clarity;

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Figure 3 is a diagrammatic perspective view of a further alternative golf club in a dismantled condition with parts omitted for the sake of clarity;

Figure 4 is a perspective view of alternative shapes 5 of socket for use in the above referred to golf clubs;

Figure 5 is a diagrammatic perspective view of a modification of the golf club of Figure 1 in a dismantled condition with parts omitted for the sake of clarity;

Figure 6 is a diagrammatic perspective view of an 10 alternative part of the golf club shown in Figure 5;

Figure 7 is a plan view of the alternative part of the golf shown in Figure 6;

Figure 8 is a side view of the alternative part of the golf club shown in Figure 6; and

15 Figure 9 is a diagrammatic perspective view of a modification of the golf club of Figure 2 in a dismantled condition with parts omitted for the sake of clarity.

Referring now to the drawings and particularly to Figure 1, a golf club in the form of a putter comprises a 20 club head indicated generally at 10 which is secured to a shaft (not shown). The club head 10 comprises a housing block 12 which is secured to a carcass 14 in a recessed portion at the front thereof. The housing block 12 can be permanently secured to the carcass 14 by adhesive, or 25 alternatively can be releasably secured thereto by screws (not shown). The housing block 12 is formed of metal and

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the carcass 14 is formed of a relatively lightweight material such as a plastics material. A club face portion 16 is permanently secured by adhesive or releasably secured by screws (not shown) to the face of the housing 5 block 12 remote from the carcass 14. An insert 18 is also permanently secured by adhesive or releasably secured by screws (not shown) in a recessed portion 20 of the club face portion 16 remote from the housing block 12. The housing block 12 is provided with a bore 22 extending from 10 the base to the upper surface thereof. The bore 22 is of a complementary shape to a socket 24 so that the socket 24 can be inserted upwardly into the bore 22 from the lower end thereof. The socket 24 is provided with a lip 26 which is adapted to engage a corresponding lip (not shown) 15 in the complementary shaped bore 22 in the housing block 12 to positively restrict upward insertion of the socket 24 and positively locate it in the desired position in the bore 22. The lower portion of the socket 24 and the complementary shaped portion of the bore 22 are of a shape 20 which tapers outwardly towards the lower end of the socket 24 and the bore 22 and are also non-circular in section to prevent rotation of the socket 24 about its longitudinal axis in the bore 22. The socket 24 is secured in the bore 22 of the housing block 12 by adhesive but it will be 25 appreciated that the tapered shape of the socket 24 and the bore 22 tend to tighten when the club is swung to more

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securely retain the socket 24 in the bore 22 of the housing block 12. The socket 24 is provided at its upper end with a substantially cylindrical bore 28 into which a shaft (not shown) is inserted from the top of the club head 10 through a hole 30 in the carcass 14 aligned therewith. The shaft is secured in the bore 28 in the socket 24 by adhesive and here again the inward pressure on the socket 24 when the golf club is swung assists in retaining the shaft in the bore 28 particularly when the socket 24 is formed of a plastics material even though the material has limited deformability. The plastics material from which the socket 24 is formed is arranged to degrade at a faster rate than the materials from which the shaft and the housing block 12 are made so that when the golf club reaches the end of its useful life the more expensive parts of the golf club can be re-used. The rear end of the carcass 14 remote from the housing block 12 is arcuate in shape and a weighting assembly 30 of similar arcuate shape in plan view is releasably secured in an arcuate recess 32 formed in the rear end of the carcass 14. The arcuate shape of the rear end of the carcass 14, the recess 32 and the weighting assembly 30 approximates to the arcuate shape of a golf hole.

The width of the club head 10 is arranged to be marginally greater than the diameter of a golf hole and the depth of the club head 10 is also arranged to be

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marginally greater than the diameter of a golf hole but less than the width of the club head 10. The upper surface of the club head 10 is provided with a central guide line 34 extending perpendicularly to the plane of 5 the club face portion 16, a circle 36 representing a golf hole, additional guide lines 38 extending parallel to the central guide line 34 and equally spaced-apart therefrom by a distance equal to the radius of a golf hole and two intermediate guide lines 40 extending parallel to and 10 equally spaced-apart on each side of the central guide line 34 by a distance equal to the radius of a golf ball.

It is found that the utilisation of a rear arcuate weighting assembly 30 provides a more accurate strike on the golf ball to propel it along a path which is aligned 15 with the central guide line 34 of the putter. In addition, the utilisation of the circle 36, the additional guide lines 38 and the guide lines 40 gives the golfer an optical guide which facilitates better alignment of the putter and also makes the target of the golf hole appear 20 to be larger making the putt less difficult. This is particularly the case in respect of the guide lines 38 due to their positioning closely adjacent to the edge of the club head 10.

In addition, the assembly of the putter with the 25 facility to remove and change the components, particularly the weighting assembly 30, allows the characteristics of

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the putter to be readily changed to meet any changes in the golfing conditions such as the speed of the greens on a golf course.

Referring now to Figure 2 of the drawings, an alternative design of putter is shown and the same components of the putter shown in Figure 1 of the drawings are referred to by the same reference numerals. It will be seen that the putter has the same housing block 12, club face portion 16, insert 18, socket 24, and weighting assembly 30. A new size of carcass 42 is provided whose depth is substantially equal to the radius of a golf hole and the circular marking 36 on the carcass 14 of the putter described with reference to Figure 1 of the drawings is replaced by a semi-circular marking 44 which corresponds to a representation of half of a golf hole. This putter is of a smaller overall size which may be preferred by some golfers but retains the advantages of the putter described with reference to Figure 1 of the drawings set out above.

In a modification, the housing blocks 12 of the putters described with reference to both Figures 1 and 2 of the drawings are provided with additional bores of the same size as the bores 22 but located either centrally or at the opposite end of the housing blocks 12 to allow the putter to be conformed to meet the requirements of a left handed golfer or a golfer who requires the putter to have

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a centrally located shaft.

Referring now to Figure 3 of the drawings, a golf club in the form of a wood comprises a club head indicated generally at 50 with a bore 52 having the same shape as the bores 22 of the previously described putters. The shaft 54 is secured to the club head 50 in the same manner and utilising the same shape of socket 56 as the sockets 24 described above with reference to Figures 1 and 2 of the drawings. In addition, a ferrule 58 is provided to cover the upper end of the connection between the shaft 54 and the club head 50 and a grommet 60 is provided to cover the lower end of the bore 52.

Referring now to Figure 4 of the drawings, four alternative shapes of sockets 62, 64, 66 and 68 are shown in which the longitudinal axis of the cylindrical bore in which the shaft is located is at a different angle to the longitudinal axis of the socket to accommodate different physical characteristics of different golfers.

Referring now to Figures 5 to 8 of the drawings, in a modification of the golf club described with reference to Figure 1 of the drawings, the same parts being denoted by the same reference numerals, the carcass 14 is provided with an upper circular plate 70 which is releasably secured thereto by screws (not shown) to allow the central guide line 34 and the intermediate guide lines 40 to be replaced with other markings if desired.

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An alternative design of the upper circular plate 70 is shown in Figures 6 to 8 of the drawings and comprises two spaced-apart circular plates 72 and 74 connected together by a central stem 76. The plates 72 and 74 are 5 disposed in parallel planes and the upper plate 74 is of smaller diameter than the lower plate 72 so that when a golfer is aligning a putt, the location of the upper plate 74 centrally in the lower plate 72 giving an "eclipse" effect ensures that the golfer's eyes are directly above 10 the centre line of the club head. The plates 72 and 74 are also provided with circular and radial markings 78 to facilitate this "eclipse" alignment by the golfer. In addition, the positioning of the plates 72 and 74 or the markings thereon relatively to one another can be used to 15 indicate not only that the golfer's eyes at the address position are directly above the centre line of the club head but also that the putter is being held by the golfer at the correct lie and loft angle.

In a modification, the diameter of the lower plate 72 20 or the marking thereon can be equal to the diameter of the upper plate 74 and the circles defined thereby are in aligned concentricity when both the putter is correctly positioned and the golfer eyes are also correctly positioned relatively to the putters head at the address 25 position.

It will also be appreciated that this type of

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"eclipse" plate assembly for ensuring a golfer's eyes are directly above the ball and aligned with the centre line of the club head could be produced as a separate item for placing adjacent to and in front of the club head face.

5        Alternatively, a device in the form of a single circular plate of smaller diameter than the golf ball can be provided which is mounted on an arm on the club head or shaft so that it is capable of pivotal movement to swing the plate into an in use position in which the plate is  
10      above a golf ball placed adjacent to the club head to an out of use position away from the golf ball.

Referring now to Figure 9 of the drawings, in a modification of the golf club described with reference to Figure 2 of the drawings, the same parts being denoted by  
15      the same reference numerals, the carcass 42 is provided with an upper semi-circular plate 80 which is releasably secured thereto by screws (not shown) to allow the central guide line 34 and the intermediate guide lines 40 to be replaced by other markings if desired.

20       Although golf clubs in the form of putters and woods have been described, it will be appreciated the invention can be applied to irons without departing from the scope of this invention.